

REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amendment and in light of the following discussion is respectfully requested.

Clams 1-20 remain active in this case, Claims 1, 7 and 14 having been amended by the present amendment.

In the outstanding Official Action, Figure 10 was objected to as requiring a legend , such as --Prior Art--; the title was objected to as not being sufficiently descriptive; Claims 1-6 were rejected under 35 U.S.C. §103(a) as being unpatentable over Applicant's admitted prior art in view of Miyazaki et el (JP 0--331420); Claims 7-11, 13-18, and 20 under 35 U.S.C. §103(a) as being unpatentable over Miyazaki in view of Shimoyama et el (5355164); and Claims 12 and 19 under 35 U.S.C. §103(a) as being unpatentable over Miyazaki in view of Shimoyama et el, and further in view of Matsusnaga et el (US 6239839 B1).

The above changes to the specification correct minor informalities and are not believed to raise a question of new matter.

In response to the objection to Figure 10, Figure 10 has been amended to include the legend --PRIOR ART--. Accordingly, the objection to Figure 10 has been overcome.

In response to the objection to the title, a new title more descriptive of the claimed invention is submitted herewith. Accordingly, the objection to the title is believed to have been overcome. If the Examiner disagrees, the Examiner is invited to telephone the undersigned who will be happy to negotiate a mutually acceptable title.

In light of the several grounds for rejection on the merits, Claims 1, 7 and 14 have been amended to clarify the claimed invention, and to that end now state, --at least two of the vertical signal lines in the optical black pixel regions being directly connected with each other--, in replacement of the original language, "a wiring short-circuiting a plurality of the

vertical signal lines in the optical black pixel regions with reach other." Substantively, the amendatory language is believed to be of similar scope to the original language.

Also, Claim 1 has been further amended to recite "unit cells of voltage read-out type," which further distinguishes the claimed invention over that disclosed in Mizoguchi (Japanese Patent KOKAI publication No. 9-37155), which was cited in Applicants' IDS. Mizoguchi discloses an image sensor device using *current* read-out type unit cells. However, in the *current* read-out type unit cells, the current amount is N-times increased when N vertical signal lines are electrically connected with each other. It is impossible to directly detect the increased current by a current-voltage converting amplifier. Thus, in Mizoguchi, a column select transistor 4 is connected between vertical signal lines 3 and GND terminal 7 to pass a portion of the current to ground (GND). On the other hand, amended Claim 1 recites "the unit cells being of voltage read-out type." In the voltage read-out type unit cells, the connection scheme of the vertical signal lines is simple, i.e., the vertical signal lines are directly connected with each other. Thus, the structure of amended Claim 1 can easily and advantageously be provided by changing the connection scheme of the vertical signal lines of existing imaging devices.

Turning now to the applied prior art, in Miyazaki, the vertical signal lines are only indirectly connected with each other through switching transistors, and are not directly connected. That is, the vertical signal lines are not connected with each other when the switching transistors are turned off. The lines are connected with each other only when the switch transistors are turned on, such that the connection/disconnection is controlled by the switch transistors. Clearly, Miyazaki does not disclose the vertical signal lines being directly connected with each other as recited in the amended Claims 1, 7 and 14. Since the admitted prior art likewise does not disclose at least two of the vertical signal lines in the optical black pixel regions being directly connected with each other, it is respectfully submitted that

amended Claims 1, 7 and 14 clearly patentably define over the admitted prior art and Miyazaki.

Similarly, the remaining applied references, i.e., Shimojima and Matsusnaga et al., likewise do not disclose the vertical signal lines being directly connected with each other, as claimed. Accordingly, the combined teachings provided by the admitted prior art, Miyazaki, Shimojima and Matsusnaga et al. do not render obvious the subject matter stated in amended Claims 1, 7 and 14, nor that stated in the dependent claims dependent therefrom.

Consequently, in view of the present amendment and in light of the above comments, Claims 1-20 are believed to be in condition for allowance and an early and favorable action to that effect is respectfully requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Eckhard H. Kuesters
Attorney of Record
Registration No. 28,870

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 08/03)
EHK/rac